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Cost of Production Records

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Record Keeping For Hog Producers

Cost of Production Records

by David Bache

Records are needed as a basis for a calculation of production cost. You need specific data to calculate the cost of producing a feeder pig or of producing a hundredweight of gain with either a farrow-to-finish unit or with purchased pigs. Then, you can use cost of production to compare with the price you are getting or expect to get for your product. You can then find out if you are covering out-of-pocket costs. What is the hog enterprise paying for your labor, management, and capital? You'll get these answers, too.

PRODUCER QUESTIONNAIRE

Listed here are a group of questions to help you decide upon the likely value to you of cost of production records. The final section of this publication (Answering the Questions on the Producer Questionnaire) demonstrates using records to answer such questions.

1. Is it important for you to know how your production costs compare with those of other producers and with the market price of hogs?

2. Would it help to know the price at which it would be better to shut down your hog facilities? To build new ones?

3. Do you need a system to identify the strong and weak points of your hog business?

4. Do you plan to do any forward selling with cash contracts or in the futures market?

5. Are you interested in an arrangement which will share costs and profits with an employee, a landlord, a tenant?

6. Do you need guidance in deciding where investments should be made?

The principal value of cost of production records is for intermediate and long-term planning. Are you competitive? Where are your costs out of line? These records do not pinpoint problems; they identify broad areas of concern. Their value will be increased if you have an opportunity to compare your costs with other producers who are collecting and analyzing similar data. Make sure they use the same procedures and accounting rules you follow.

WHERE SHOULD THE EMPHASIS BE PLACED?

The cost of gathering, analyzing, and storing data is high. Therefore, as an efficient manager, you must decide which information will be most useful to you and which you can do without. Table III-1 lists typical costs in dollars and percentages of producing feeder pigs, and of producing gains (both on farrow-to-finish and on purchased pigs) in the early 1980's. The data in Table III-1 support the following conclusions:

By far the most important cost item in hog production is feed. The only exception to this rule is in feeding purchased pigs. In this case the cost of the feeder pig will be approximately

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Record Keeping for Hog Producers

The development of this series of publications was made possible by special project funding from the United States Department of Agriculture--Extension Service. The ideas presented here have been developed through close cooperation among the national extension service, the state universities, and the pork production industry. Errors and oversights are the responsibility of the primary authors.

This publication is one of six in a series, each designed to be a self-contained unit. Yet the relationship between this and the other five publications is of critical importance. Each publication (section) in the series is identified by a Roman numeral for purposes of reference back and forth among the six subject areas. Tables, exhibits, recording forms and reports also are identified with a combination of Roman and Arabic numerals. For instance, Table VI-1, Performance Measure for the Swine Herd, is the first table in EC-601 (section VI); it is found in that publication although it may be referred to in others. EC-602 consists of blank recording and report forms for your own operation.

equal to the feed cost. Since feed represents 40-65% of total cost, any serious hog producer should be prepared to keep track of feed conversion and feed cost.

The second and third most important categories are the cost of owning buildings and equipment (depreciation, interest, taxes, maintenance) and the cost of labor. In spite of their size, it is usually not important to calculate these costs at frequent intervals because they are usually fixed for the enterprise. The typical situation has a set of facilities and a supply of labor committed to hog production. Such resources are considered fixed. They cannot easily be freed to do something else. These costs are there whether or not the resources are used. The only way to reduce such fixed costs per unit of production is to increase output. Consequently, it is important to monitor volume produced frequently: by controlling it, you control facility and labor cost. You need an occasional calculation (at least once a year) of facility and labor cost to see whether you continue to be competitive. If you discover a problem, your solution will be through fundamental management changes. Some of these changes include increasing the inventory of breeding animals, improving rate of gain, adjusting the farrowing schedule or weaning age, or adding facilities to eliminate bottlenecks and to save labor.

The costs of electricity, fuel, veterinary and medicine are relatively small but can get out of control and reduce your profits. These costs are often easy to monitor. When problems occur, you can normally correct them with slight modifications of procedures (e.g., care and adjustment of fans or setting of thermostats).

HOW FREQUENTLY SHOULD COST-OF-PRODUCTION BE ESTIMATED?

Your first impulse response is likely to be, "The more often, the better!" However, this is not necessarily so. Before you decide, take into consideration the following:

--the cost in terms of time, energy and animal performance to prepare the report. For example, weighing pigs is time consuming. It is hard work and also hard on the animals.

--the accuracy of short-term data. Billing delays by your suppliers can distort short-period cost records. And, some expenses are paid infrequently. For instance, on a monthly record, how will you make a charge for property taxes which are typically paid only twice a year? Also, because most farms are never without an inventory of animals plus feed and supplies, cost of production records must rely on inventories. Since it is often necessary to estimate weights of animals and bushels of grain, inventory figures may contain unavoidable errors. These inventory errors are a problem with cost of production data. The problem is more serious with frequent (monthly!) reports than with infrequent (yearly!) ones. With longer periods, errors in inventory become a smaller percentage of the totals of production and consumption. Hence, they have less effect on the accuracy of the final calculations.

--the ability and desire to respond to problems. Do not change procedures too often. There is danger of interfering with the stability of your hog operation.

Many hog producers who use cost of production figures now believe once a year calculation is not often enough. However, monthly figuring of production cost is too frequent on most farms. In most situations, a semiannual or quarterly report will be about right.

COMPARATIVE ANALYSIS

After gathering the data and making the calculations described in this section, you will have cost of production

Table III-1. Typical Cost of Production Data in Dollars and Percentages*

Item	Cost of Producing a Cwt. of Gain: Farrow-to-Finish $	Farrow-to-Finish %	Purchased Feeders $	Purchased Feeders %	Cost of Producing a 50# Pig $	Cost of Producing a 50# Pig %
Grain	18.85		14.60		11.50	
Protein, Vitamins, Minerals	12.35		8.25		11.00	
Total Feed	31.20	63.0	22.85	42	22.50	49
Buildings and Equipment (Depreciaton, Interest, Taxes, Insurance)	8.50	17.0	3.00	6	6.65	14
Labor	4.00	8.0	2.35	4	7.65	16
Electricity, Fuel, Repair	2.25	4.5	.95	2	2.50	5
Interest and Taxes on Feed and Livestock	2.20	4.0	1.45	3	2.10	5
Vet and Medicine	0.60	1.0	.45	1	1.35	3
Boar Depreciation	0.20	0.5	--	--	.50	1
Purchased Feeder Pigs	--	--	21.20	40	--	--
Marketing and Miscellaneous	1.20	2.0	1.15	2	3.25	7
Total	50.15	100.0	53.40	100	46.50	100

* Based on data from ID-68, Farm Planning and Financial Management, 1980 Revision, Purdue University, Lafayette, Ind. These figures were prepared in late 1980 as a forecast of the price structure for the following five years.

information for your farm. This will tell you whether you are operating at a profit; it will be a useful guide in planning and marketing. But, for troubleshooting, you need figures with which to compare. Otherwise you do not know how well or how badly you are doing.

The value of your current reports will increase as you accumulate cost of production information over time. With the accumulation of a history, you will be able to prepare graphs and tables to identify developing problems and to document improvements. However, a comparison with your own history will not tell you whether your costs are good or bad. It will only reveal whether they are rising or falling.

Many hog producers are cooperators in farm record services sponsored by agricultural colleges, credit institutions, farm organizations, or agricultural supply firms. These record rings often place great emphasis on what they call comparative analysis. Comparative analysis is the gleaning of information from a study of your records along with those of a group of your peers. All cooperators use the same accounting rules and calculational definitions. The comparisons are usually with others in the same state or some smaller area. Therefore, you are assured of a comparison with herds that faced the same climatic conditions as yours and a similar cost structure for feed ingredients, labor, fuel, etc. For troubleshooting, the value of cost of production information is greatly increased by comparative analysis. For examples of comparative analysis reports, see Table I-1, 1982 Iowa State University Swine Enterprise Record Summary, EC-596 and Table II-1, Statistics Describing Indiana Hog Farms, 1982, EC-597.

SOME PRACTICAL PROBLEMS IN CALCULATING COST-OF-PRODUCTION

Let's assume you are ready to gather data on your farm to calculate the cost of producing a hundredweight of gain or of producing a feeder pig. You may be able to adopt a method already developed and tested. Or you may decide, by choice or necessity, to develop your own procedures. In either case, you must deal with the following list of issues. Even if the decisions have already been made for the record group you are joining, you should understand the implications of those decisions.

Volume of Production

The calculation of cost of production should yield a figure that can be compared with other producers and with market prices. What is it costing me to produce a hundredweight of gain? To make such a calculation, you need an estimate of quantity produced as well as its value.

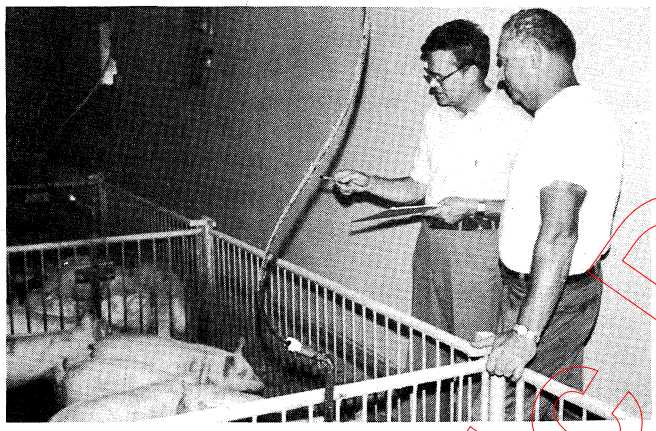
A calculational definition of quantity or number produced is:

Production = (Ending Inventory + Sales) minus (Beginning Inventory + Purchases)

As a taxpayer, you already record income from the sale of hogs and expenditures for additions to your herd. Having decided to do something with your income tax records besides using them to calculate tax liability, you should record number and quantity as well as dollars for every sale and purchase of animals.

Because the inventory of hogs varies widely but only reaches zero in rare circumstances, any estimate of volume produced must be made after considering inventory change. An inventory must be prepared when you begin keeping cost of production records. Do the same each time you decide to close the account and calculate production cost. You may already be generating an inventory periodically as part of your net worth statement. If so, and if you have recorded the number and weight of animals as well as their value, you can make a second use of the data in calculating cost of production.

The Inventory Problem. Quantity. Very few producers can weigh every hog to get an accurate inventory. However, you can be accurate enough by using a head count and spot-checking the weight of individual animals. A helpful recording form to use at inventory time is a small, rough floor plan of your hog facilities.[1] On inventory day, the floor plan can be used as a place to record the number of pigs in each pen and their average weight. You can have your prepared floor plan reproduced to use as a routine inventory form. Make the inventorying job as easy as possible. For instance, you may want to ignore unweaned pigs when taking inventory to calculate cost of production on a farrow-to-finish farm.



On inventory day, the floor plan can be used as a place to record the number of pigs and their average weight.

Inventory accuracy is increasingly important as the accounting period is shortened. In other words, a slight inventory error would have a much greater influence on a calculation of production costs for the month of February than for the year 1983. On an intensively operated, farrow-to-finish farm the normal inventory of animals will be about 5 times monthly production. That is, a farm that sells 200 per month will have about 1,000 in inventory. So, on a monthly basis, a small percentage error in inventory can greatly distort calculations of profit or loss. In contrast, a normal inventory will be only 0.6 of annual production and 1.6 times quarterly production.

Value. Valuing the inventory becomes an important issue because the quantity in inventory is usually so large and hog prices are so volatile. Changing the price of a huge inventory can result in paper profits or losses that dominate the calculations. Your challenge is to choose a valuation scheme that recognizes basic economic changes but masks erratic price swings. Here are a few alternative methods of solving the inventory valuation problem:

1. Current market price. The virtue of using market price is its simplicity. The problem is, it is so volatile it produces misleading estimates of profit or loss. It will be more appropriate for an annual calculation of profitability than for one dealing with a shorter period.

Soften the effect of market volatility by: a) holding the value of breeding animals at a standard price but valuing market animals at current prices. The Internal Revenue Service describes a standard pricing system, "the unit-livestock-price method."[2] b) pricing the inventory at a six-month moving average price rather than the current market.

2. Cost of production or market value, whichever is less. This leads to conservative values, and it is a procedure recommended by the accounting profession and the Internal Revenue Service.[3] However, this procedure is difficult to use. For example, no one will know the cost of producing each

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[1] See Exhibit V-1, Hog Inventory Worksheet in EC-600, Records for Inventory Control, Communication, and Scheduling.

[2] Internal Revenue Service Publication 538, Accounting Periods and Methods.

[3] Ibid.

category of animals (gilts, sows, market hogs, etc.) in inventory, but using one price for all categories would be wrong. One way to get around this problem is to recognize only the change in inventory in calculating production to be credited to the enterprise. With this last procedure, the calculation of value of production (dollar values on each item in the following formulas) changes from:

Value of Production =
(Ending Inventory + Sales) -
(Beginning Inventory + Purchases)

to

Value of Production =
Increase or Decrease in Inventory
+ Sales - Purchases

The difference between these two calculational definitions may not be obvious. However, the second one ignores any change in the price of livestock in inventory as a gain or loss to the business. There a value has been put only on the quantity change in inventory. It should be priced at market value or cost of production.

Unfortunately, this last procedure does not free the record keeper from preparing a complete inventory. You'll need total value for a Net Worth Statement. It is also needed to establish an interest charge (see Capital Costs).

The By-Product Problem. Most livestock enterprises include the production of by-products. The egg producer has spent hens to sell; the lamb feeder has wool; the milk producer has bull calves. For a sow-herd swine enterprise, the primary product is either feeder pigs or barrows and gilts for slaughter; the by-products are weight gains on breeding animals and manure. For cost of production accounting you must make a decision about the handling of by-product costs and receipts.

Cull Breeding Animals. Any hog production unit involving a sow herd will produce weight gains on breeding animals. The manager will, and should, include the expense of maintaining the breeding herd as part of the total cost of production. But how should receipts from sales of cull sows and boars be handled? Fortunately, for farrow-to-finish production, a satisfactory solution is to assume there is no problem; the gains put on breeding animals are added to the weight gains put on market animals as though they were identical. So, the calculated cost of production is the cost of producing the average hundredweight of gain whether it be on sows, boars, or market hogs. This is a reasonable simplifying assumption since the volume of breeding stock sales is relatively small, normally less than 10% of total sales. Also, after considering the favorable tax treatment of receipts from sales of raised breeding stock, the after-tax value per pound of the by-products is not greatly different from the primary product.

For farrow-to-weaning, the by-product problem is more serious. The primary product, feeder pigs, will normally be worth more than twice as much per pound as the by-product, cull sows and boars. Therefore, you cannot assume they are additive. In addition, some feeder pig producers will want to calculate costs on a per pig as opposed to a per hundredweight basis. Adding pigs to hundredweights makes no sense.

Here are two alternative ways of resolving the cull animal by-product problem for the feeder pig producer:

1. Treat income from the breeding animal as a reduction of total cost, a by-product allowance. Deduct by-product receipts from your total cost before dividing by pigs to get your cost per pig. There is a problem with this solution. It confuses the allocation of specific costs. You do not get an

answer to the question, "What is my labor cost per pig?" Instead, you have the labor cost of producing a pig along with a certain amount of by-product.

2. Treat income from the production of breeding animals as though it was from the primary product. Then calculate the feeder-pig equivalents represented by gross income. Use feeder-pig equivalents as the measure of total production. For instance, assume that a feeder pig producer's records showed his annual production as 875 pigs worth $38,500 or an average of $44.00 per head. In addition, his breeding animals produced weight gains valued at $5,150. He could translate the breeding animal production into feeder pig equivalents (e.g., $5,150.00 ÷ $44.00 = 117 pig equivalents). The producer could calculate per pig costs as though he had produced 875 + 117 = 992 pigs.

With a liquid-manure, no-bedding system, you might assign the ownership of spreading equipment and associated costs to the cropping enterprise.

Manure. The value of swine waste is increasing rapidly as the price of fertilizer nutrients increases. This is a by-product producers may want to recognize in preparing their cost of production accounts. However, be careful when estimating; there has been a good bit of wishful thinking in estimating the fertilizer value of manure. Since most manure is used as fertilizer on the farm where it is produced, ask yourself how much the fertilizer bill would increase if manure were not available. Your answer will yield a realistic manure credit. With good procedures for storing and spreading wastes, the answer is likely to be about $3.00 per hog produced on a farrow-to-finish basis.

Once you have established a value for manure, it can be recognized as a by-product allowance to be subtracted from total cost. Or an alternative is to eliminate manure as an accounting problem by adopting a simplifying assumption. For instance, if home-produced bedding is used on your hog farm, you might assume a fair exchange is taking place between your crop and hog enterprises. The crop enterprise supplies bedding in exchange for manure, and there is no need for a straw charge or manure credit in your hog account. Likewise, with a liquid manure, no-bedding system, you might assign the ownership of spreading equipment and associated costs to the cropping enterprise. The assumption would be that field application of manure is a break-even activity.

We have discussed some important questions about the income side of enterprise records. We will now turn to the cost side.

Feed

Feed is the major cost in hog production, so careful monitoring is justified. The necessary data on purchased feed will be readily available. Feed supplier invoices will list quantity purchased as well as value. However, your recording system may not be designed to let you list quantities because that information is not needed for income tax accounting. But it is needed to calculate feed conversion, so you may be obliged to change your recording forms.

More difficult is the problem with home-produced feed. Most hogs are produced on grain farms where they are an important customer for the grain enterprise. But few hog producers have developed equipment or procedures to measure consumption of home-produced feed.

Quantity. Most agricultural college, farm accounting projects estimate the consumption of home-produced grain using the following formula:

Feed Consumption = (Ending Inventory + Production + Purchases) - (Beginning Inventory + Sales)

This calculation assumes the livestock ate any grain not accounted for elsewhere. The resulting estimate is subject to large errors. It will tend to overstate feed usage since there is no recognition of shrinkage or storage losses. However, it is better than no estimate at all. Make this calculation even if it is only used as a cross-check against more precise measures of feed grain use.

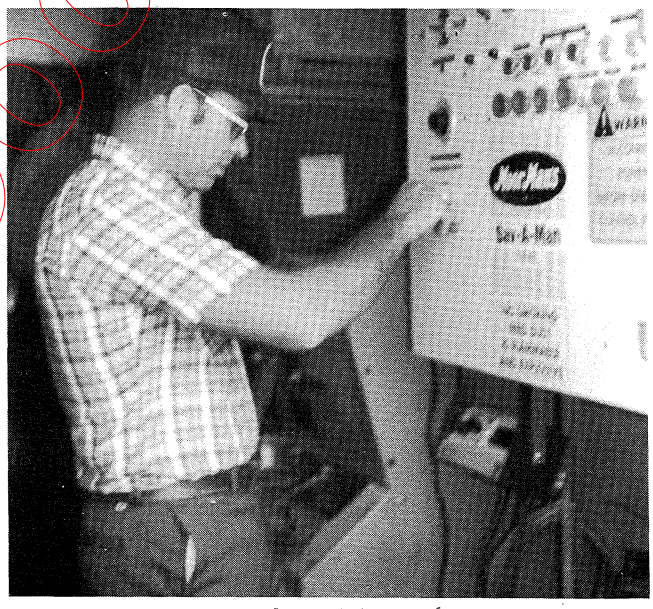
Here are some alternative ways to estimate consumption of home-grown feed. Any of these can be satisfactory. Conscientious and consistent monitoring and recording are more important than which system you use.

1. Weigh all ingredients. This will give you the greatest accuracy in measurement. However, systems with weighing capability are usually batch systems. They require expensive equipment and a sacrifice in labor efficiency. There are also automatic weighing devices with counters that fit into the flow of ingredients.

2. Measure volume as a proxy for weight. It is often possible to set aside a bin as the source of feed grain for hogs. Calculate usage by measuring volume at the beginning and ending of the accounting period and calculating disappearance. There is a problem in making accurate measurements in large bins and with variation in density of the product. Also, this system provides no control over individual rations.

3. Time the flow of ingredients as a way of estimating weight. This involves the calibration of augers and automatic blending devices for volumetric measure (e.g., two minutes of auger run equals 235 lb. of corn). Frequent recalibration is needed because of variation in density and flow characteristics of each ingredient.

4. Count batches. After establishing stable formulas, you can record batches or the disappearance of some easily counted ingredient (e.g., having used three sacks of finisher premix, I must have used 4,500 lb. of corn).



Feed is the major cost in hog production, so careful monitoring is justified.

Price. Feed grain is often a home-produced item, so a pricing problem arises. At what price should my grain be charged to the hogs? In fairness to the grain enterprises and to allow an objective evaluation of hog production costs, the hogs must pay the best price at which the grain could have been sold. This is called the opportunity value.

If you are keeping cost of production records as a member of a record ring and an important objective is to generate data easily compared with your neighbors, you may want to adopt a common pricing procedure. For instance, you might all agree to use the purchase price quoted by your closest terminal for #2 corn on the 15th of each month.

You must also decide where in the storage, conditioning, processing cycle the grain will be priced. At what point does the grain become the property of the hog enterprise? Here is a recommendation: Charge the cost of owning bulk grain storage plus drying and handling equipment to the grain production enterprise. Include the associated costs of fuel, electricity, labor, etc. Assign to the hogs the cost of enough grain storage to service the feed processing center along with storage for other feed ingredients. In addition, the hogs should pay all costs associated with grinding, blending, and distributing feed. This division of costs allows you to price home-produced grain to the hogs just as you would to any other buyer.

The Shared Input Problem

Procedures are needed to make an appropriate division of the cost of items shared by the hog enterprise and other enterprises. The assignment of most charges is clear-cut. Hog supplement is charged to the hogs; seed corn to the corn enterprise. But how do you charge the hogs for use of the tractor which hauls manure but also plants corn? How much of the telephone bill should be charged to the hogs? Property taxes? Insurance?

If your farm is strictly a hog production unit, there will be no shared-input problem. If you produce grain as well as hogs, the problem will arise. If you produce grain and have a second or third livestock enterprise, the problem can be serious.

Here are some suggestions for resolving the shared-input problem:

--Avoid the problem by eliminating shared inputs. Install separate meters for gas, electricity, and water. Keep a daily log of labor usage by enterprises.

--Use rental rates when you can. Charge the hogs on a per hour or a per mile basis for the use of tractors, trucks, etc. Charge rent for use of shared buildings.

--There will be items on most farms that are not subject to these clean solutions, or the solution may be too expensive. Listed below are three criteria for allocating the cost of shared inputs.

1. Proportion of Total Production Represented by Hogs. Calculate the dollar value of production for each enterprise on your farm. For instance, you may produce $25,000 worth of hogs and $100,000 worth of grain, so 20% ($25,000 ÷ $125,000) of total production is from the hog enterprise.

2. Proportion of Total Labor Used by the Hog Enterprise. Hours of labor in the hog enterprise divided by total hours used in the business.

3. Proportion of Total Investment Directed to the Hog Enterprise. Use your net worth statement and depreciation schedule as data sources. Then calculate the investment in hogs and hog facilities as a share of the total investment in your farm business.

Use the most appropriate of these three to allocate each troublesome expense to the hog enterprise. For example, assume that you have charged $400 worth of automobile expense to the farm business. You decide to charge a share of the $400 to the hog enterprise in proportion to labor usage:

a. Hog Enterprise Labor = 1,568 hr.
b. Total Labor Usage:
   Number of Men
   2.3 x 3,120 hr. = 7,176 hr.
c. a ÷ b
   (proportion to hogs) = .22
d. c. X Total Auto Expense = $88.00

The $88 is the charge to the hog enterprise. Make similar calculations for the troublesome expenses listed below and others that crop up in your business.

Troublesome Expense	Recommended Criterion
Property Taxes	Proportion of Investment
Telephone	Proportion of Production or Labor
Fuel, Oil, Grease	Proportion of Labor
Auto Expense	Proportion of Labor or Production
Electricity	Proportion of Labor or Production
Insurance	Proportion of Investment

Capital Costs

You need to establish a procedure to charge for the use of capital items for a production period (year, quarter, month) and for each unit of production (hundredweight, pig). To evaluate the profitability of hog production and to compare with other enterprises, all costs must be recognized.

Two important costs are interest and depreciation (cost recovery). The hogs must pay interest on capital invested. Interest should be charged on every dollar tied up in hog production for the period over which it is invested. The dollar investment is usually estimated as the average of beginning and ending inventory values. The hogs must also maintain the investment in facilities. That is, they must pay a depreciation allowance which lets the enterprise recover the capital invested in facilities as those facilities are used up. How should these charges be calculated? There are three issues to be resolved. The issues will be described, and some guidance will be given for choosing among alternatives:

Valuation. If you have prepared a net worth statement, you have already decided upon methods of valuation and upon values. In any case, the common procedure is to value raised breeding animals and market hogs in inventory at their market price,[4] to value feed and supplies at their purchase price, and to value purchased breeding animals at their purchase price minus depreciation.

However, you have a harder decision concerning appropriate values for long-lived capital items like buildings and equipment. You probably already have two different values established for these items in your schedule of accounts. This will be true if you routinely prepare a double-column net-worth statement.[5] It will also be true if you simply maintain a depreciation schedule for income tax purposes and prepare informal net worth statements as they are requested by your lender. The cost basis (depreciation schedule) values will reflect your past income tax strategies. They are likely to be lower than market values since the tax laws lead you to depreciate rapidly to postpone taxes and because the cost basis values are not affected by inflation. You must make a choice from among these two values and other possible values in preparing your enterprise records.

[4] This is not to suggest that the "common" procedure is necessarily the "best." In fact, an accrual basis taxpayer who uses market value rather than cost of production in valuing inventory will miss an opportunity to delay taxes. See the earlier discussion, The Inventory Problem.

[5] See EC-597, Tax and Financial Management Records.

Recording Form III-1. Hog Inventory

Description	Beginning - Date 1/1/80					Ending - Date 12/31/80				
	No.	Avg. Wt. lb.	Total Wt. cwt.	Price $	Total Value $	No.	Avg. Wt. lb.	Total Wt. cwt.	Price $	Total Value $
Boars	4	485	19.40	—	$1,000	4	320	12.80	—	$1,280.00
Gilts } ALL Sows }	106	360	381.60	—	26,500.	88	325	286.00	—	17,600.00
Market Hogs	265	170	450.50	40.00	18,020.	250	148	370.00	44.00	16,280.00
Feeder Pigs	285	55	156.70	71.00	11,129.	261	33	86.13	80.00	6,890.00
Inventory Summary:										
1. Totals	660	XXXXX XXXXX	1008.20	XXXXXXX XXXXXXX	56,649.	603	XXXXX XXXXX	742.13	XXXXXXX XXXXXXX	40,770.00
Place smaller inventory total under larger and subtract	603	XXXXX XXXXX	742.13	XXXXXXX XXXXXXX	40,770.		XXXXX XXXXX		XXXXXXX XXXXXXX	
2. Inventory Decrease	57	XXXXX XXXXX	266.07	XXXXXXX XXXXXXX	XXXXXXXXX XXXXXXXXX					
3. Inventory Increase							XXXXX XXXXX		XXXXXXX XXXXXXX	XXXXXXXXX XXXXXXXXX
4. Average Inventory	632	XXXXX XXXXX	875.17	XXXXXXX XXXXXXX	48,710.					

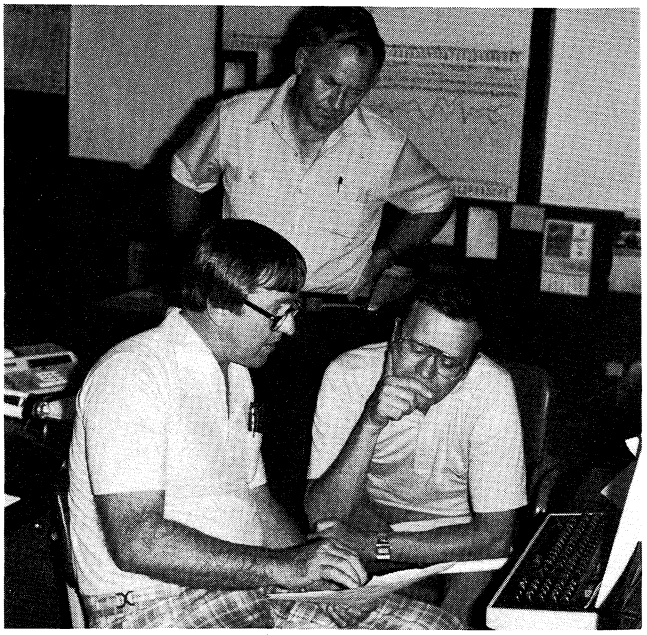
Interest Rate. The interest charged on capital invested in inventory and facilities should be either the opportunity rate of interest or the rate actually being paid on debt or some standard rate agreed upon by the members of a record ring. The opportunity rate is what you could earn on money now invested in the hog enterprise if you sold out and invested elsewhere. Since the opportunity rate focuses on alternatives, it is a great help in enterprise evaluation.

Cost Recovery (Depreciation) Rate. There will be no cost recovery of the investment in market or raised breeding animals, supplies, or land because these items do not depreciate. You may depreciate purchased breeding animals, and you will certainly depreciate buildings and equipment. The cost recovery expense you report to the Internal Revenue Service is readily available and may be appropriate for enterprise accounting. For the IRS, you have made a depreciation decision on each separate building or piece of equipment. In doing so, you considered the important variables--salvage value, expected life, method of cost recovery. The problem is you were influenced primarily by tax considerations in setting these rates, so they may have little relationship to the actual rate at which facilities are used up.

Choice of Values and Rates. The best method of valuing capital assets and charging for their use will be determined by your reason for keeping enterprise records. The choice will be influenced by the difficulty of collecting the data and making the calculations.

For instance, your goal in enterprise accounting may be a comparison with previous performance on your farm. If so, and if you have a comprehensive record system that generates tax, business management, and enterprise reports, you are likely to: 1) use cost basis (depreciation schedule) values for facilities, 2) use the depreciation (cost recovery) charge reported to the Internal Revenue Service, 3) charge the interest actually paid on hog enterprise debts plus interest on equity (value of assets minus debt) at your opportunity rate.

In contrast, your purpose may be comparing your records with others. If so, and especially if your enterprise accounting is separate from tax and business management accounting, you will be led to different decisions. It will be important to have uniform rules followed by those with whom you are comparing. For instance, all might agree: 1) to establish the market or current replacement value of your hog facilities and to depreciate from there, 2) to calculate depreciation on the basis of a uniform standard life (perhaps 10 years for buildings and 5 for equipment) and zero salvage, 3) to charge interest at a standard rate (perhaps 12%). For uniformity among cooperators, ignore interest payments to others. Apply the standard interest rate to every dollar invested in the hog enterprise as though every dollar used in hog production on your farm was borrowed from you, as in fact it is.



Your purpose may be comparing your records with others, especially if enterprise accounting is separate from tax and business management accounting.

Recording Form III-2. Sales of Market Hogs

Date	Description	1 No. Head	2 Total Weight (cwt.)	3 Price	4 Total Dollars
Jan.	Pig Pak	36	71.30	37.89	2701.25
Feb.	Pig Pak	69	142.59	37.31	5319.37
Mar.	Pig Pak	85	170.75	35.06	5986.62
Apr.	Pig Pak	73	156.35	29.01	4535.14
May	Pig Pak	48	108.60	30.28	3288.31
June	Pig Pak	122	275.85	34.67	9562.79
July	Pig Pak	48	98.55	43.07	4244.62
Aug.	Carcass Show	2	3.80	40.02	152.08
Aug.	Pig Pak	93	199.50	48.93	9760.97
Sep.	Pig Pak	73	164.85	47.47	7825.81
Oct.	Pig Pak	44	96.80	48.00	4616.40
Nov.	Pig Pak	45	98.25	47.93	4708.65
Dec.	Pig Pak	58	132.10	45.60	6023.37
Dec.	Producers	10	22.40	44.43	995.17
XXXXXX XXXXXX XXXXXX	TOTALS	832	1801.55	39.99	72,045.94

Recording Form III-3. Sales of Breeding Stock

Date	Description	1 No. Head	2 Total Weight (cwt.)	3 Price	4 Total Dollars
Jan. & Feb.	Sows	21	71.85	31.10	2235.53
Mar. & April	Sows	11	40.85	27.69	1131.12
May & June	Sows	18	62.75	23.76	1729.00
July & Aug.	Sows	12	39.80	37.61	1496.77
Sept. & Oct.	Sows	7	26.00	40.93	1064.20
10/29	Gilts	15	31.60	58.87	1860.20
10/6	Boar	1	5.85	40.99	239.60
Nov & Dec.	Sows	14	55.25	39.96	2207.72
XXXXXX XXXXXX XXXXXX	TOTALS	99	333.95	35.83	11,964.34

Sales of Feeder Pigs

2/19	S.E. Feeder				
	Auction	53	48.70	45.79/hd.	2426.70
XXXXXX XXXXXX XXXXXX	TOTALS	53	48.70	45.79/hd.	2426.70

Home Used Hogs

2/5		1	2.56	38.00	97.28
4/15	Ruptured	1	2.60	15.00	39.00
12/31		2	4.33	45.89	198.72
XXXXXX XXXXXX XXXXXX	TOTALS	4	9.49	35.30	335.00

Recording Form III-4. Breeding Stock Purchases

Date	Description	1 No. Head	2 Total Weight (cwt.)	3 Price	4 Total Cost
5/12	White boar	1	2.80	~	300.00
9/3	Belted boar	3	8.55	~	980.00
XXXXXX XXXXXX XXXXXX	TOTALS	4	11.35	XXXXXXXXX XXXXXXXXX XXXXXXXXX	1280.00

Feeder Pig Purchases

XXXXXX XXXXXX XXXXXX	TOTALS			XXXXXXXXX XXXXXXXXX XXXXXXXXX	

Labor

Labor is one of the important costs in hog production (Table III-1). The quantity used is difficult to monitor on most farms because hogs are often a secondary enterprise sharing labor with crops or other livestock. Also, labor inputs vary considerably from day to day and from season to season. The problem disappears when hog enterprise labor is provided exclusively by full-time employees devoted to the enterprise. On some farms it is resolved by using a daily labor log to record hours of labor devoted to the hogs. At the very least, you can make an intelligent estimation of labor used in hog production with Recording Form VI-5 (see EC-601, Records to Measure Production and Productivity and to Monitor Herd Health).

A large percentage of the nation's hogs are produced with the labor of the farm operator and his family--labor not given a specified wage. So a pricing problem appears similar to the one of pricing home-raised feed. The solution is to use the opportunity cost principle the hogs should pay a wage equal to that paid in the best available alternative.

RECORDING FORMS, INSTRUCTIONS

This section provides forms for your cost of production records. Recording Forms III-1 thru III-13 are used to gather the necessary data which are summarized on Reports III-1 and III-2. You will already be recording much of the necessary data for your income tax reports and your net worth statements. So much of the job here will involve extracting data from those records. Some of the forms shown here will be used only as a place to accumulate the totals of various categories of receipts and expenses.

We will give you brief instructions, sample data from a farrow-to-finish hog farm, and references to the detailed discussion of the issues in the early part of this publication.

The data used as an example are from an actual farm for the year 1980 (a bad year for hog producers). The farm is owned and operated by the Peter Jackson family. They have 230 tillable acres, with corn as their only crop. They have facilities adequate to produce about 1,000 farrow-to-finish hogs per year. Except for a little seasonal help, all labor is provided by Peter, his wife Betty, and their two daughters. The Jacksons calculate cost of production in their hog business annually.

Hog Inventory Recording Form III-1

Like most farmers, the Jacksons calculate their income taxes on a cash basis so they do not have inventories as part of their tax records. However, their banker requires an annual net worth statement which reflects the hog inventory. When the Jacksons began calculating cost of production for the hog enterprise, they became more precise in preparing a hog inventory (see "The Inventory Problem"). They are careful to record the numbers of animals, their weight, and their value. Since they do not have scales, their procedure is to make a careful headcount on a pen-by-pen basis and to estimate the average weight of the hogs in each pen.[6]

Recording Form III-1 provides space for a beginning and ending inventory. The Jacksons calculate cost of production annually so their inventories are at the first and end of the year. If you want to close your records monthly, or quarterly or semi-annually, take inventory at the end of each period. But once started, it takes only one inventory per period. One period's ending inventory serves as the beginning inventory for the next.

To arrive at the totals on line 1 of the Inventory Summary at the bottom of Recording Form I-1, Betty Jackson added

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[6] For an example, see EC-600, Records for Inventory Control, Communication, and Scheduling.

the data (number, weight, value) for sows, boars, pigs, etc., as though they were the same. See the discussion "The By-Product Problem." There it is suggested that if you are a feeder pig producer you will want to handle this differently. You will want to calculate inventory change and total quantity produced of breeding animals, separate from feeder pigs.

Betty transferred her totals from line 1, Recording Form III-1, to lines 6 and 11 of Recording Form III-5. If you decide you do not want to include changes in the price of the hogs in inventory as a receipt or expense, do not handle totals as Betty did. Instead, calculate the increase or decrease (line 2 or 3, Recording Form III-1) in inventory in hundredweight (see "The Inventory Problem"). Then, value this weight change according to current market price or cost of production. Include only the value of the inventory change in the Recording Form III-5 calculation instead of the total value of beginning and ending inventory.

Hog Sales and Purchases, Recording Forms III-2, III-3, and III-4

You are already recording dollar receipts for your tax records. But to calculate cost of production and have an accuracy check on numbers (Recording Form III-5), you will need the number of hogs sold and purchased and their weight. It is best to add numbers and weights to your tax records. This way you will have all the information needed to pay taxes and to calculate cost of production. Betty Jackson has transferred from her tax records to Recording Form III-2 monthly totals of butcher hog sales, and to Recording Form III-3, bi-monthly totals of sow sales. If she had preferred, she could have entered only the totals for the year. The total number, weight, and value for the accounting period is all you need for this cost of production analysis. Record date, description, and price only if you use this information and have not already recorded it elsewhere.

In the Total Dollars column on Recording Forms III-2 and III-3, record the net amount of the check from your marketing agency after their deductions for commission, yardage, etc.

Estimate the weight of any stock not purchased or sold by weight. Estimate the value as well as the weight of animals slaughtered for your own use.

Pork Production Summary, Recording Form III-5

Complete the Pork Production Summary at the close of your accounting period. Sources of information are listed by item on each line of Recording Form III-5.

In column 1, Number of Head, the figures on lines 7 and 12 should be equal. If they are not, you have an inaccurate entry or an error in arithmetic. Betty Jackson brought to line 10 data on number weaned from her farrowing house record. The Jacksons do not record deaths after weaning, so the Number Died on line 5 was calculated to balance the account.

Home Raised Feed Check Sheet, Recording Form III-6

This is an optional form. The figures here do not enter into the calculations made in completing Reports III-1 and III-2. Use Recording Form III-6 to make a first estimate of the amount of home-produced feed consumed by the hogs. Since the Jackson farm produces only corn, Peter used only one column on Recording Form III-6. Other producers might have a column for oats, wheat, barley, bedding, etc. Since the only livestock on the Jackson farm is hogs, the figure on line 9 is an estimate of hog feed. Recording Form III-6 helped Peter determine how much corn he had and where it went. The assumption is that if it wasn't sold, used for seed, or

Recording Form III-5. Pork Production Summary

	1 No. Head	2 Total Weight	3 Total Value	4 Avg. Wt.	5 Avg. Price
1. Market Hog Sales (Form 2)	832	1801.55	72045.^{94}	217	39.^{99}
2. Breeding Stock Sales (Form 3)	99	333.95	11964.^{34}	337	35.^{83}
3. Feeder Pig Sales (Form 3)	53	48.70	2426.^{70}	92	49.^{83}
4. Home Used (Form 3)	4	9.49	335.^{00}	237	35.^{30}
5. Number Died (From Your Mortality Records)	162	XXXXXXXX XXXXXXXX	XXXXXXXXXXXX XXXXXXXXXXXX	XXXXXX XXXXXX	XXXXXX XXXXXX
6. Closing Inventory (Form 1, Line 1)	603	742.13	40770.^{00}	123	54.^{94}
7. Total Credits (Line 1 + 2 + 3 + 4 + 5 + 6)	1753	2935.82	127,541.^{98}	XXXXXX XXXXXX	XXXXXX XXXXXX
8. Breeding Stock Purchases (Form 4)	4	11.35	1280.^{00}	284	112.^{78}
9. Feeder Pig Purchases (Form 4)	—	—	—	—	—
10. Pigs Weaned (From Your Farrowing Records)	1089	XXXXXXXX XXXXXXXX	XXXXXXXXXXXX XXXXXXXXXXXX	XXXXXX XXXXXX	XXXXXX XXXXXX
11. Opening Inventory (Form 1, Line 1)	660	1008.20	56,649.^{00}	153	56.20
12. Total Debits (Line 8 + 9 + 10 + 11)	1753	1019.55	57,929.^{00}	XXXXXX XXXXXX	XXXXXX XXXXXX
13. Production (Line 7 minus Line 12)	XXXXXX XXXXXX	1916.27	69,612.^{98}	XXXXXX XXXXXX	

Recording Form III-6. Home-Raised Feed Check List

	CROP			
	Corn	Oats		
1. Beginning Inventory	13000			
2. Purchases	0			
3. Production	12495			
4. Total to Account For: (Sum of 1+2+3)	25495			
5. Ending Inventory	8260			
6. Sales	1806			
7. Used for Seed	0			
8. Total Accounted For: (Sum of 5+6+7)	10,066			
9. Estimated Quantity Fed: (Line 4 minus Line 8)	15429			

left in ending inventory, it must have been eaten by the hogs. The figure on line 9 is then compared with the alternate calculation of corn use at the bottom of Recording Form III-9. If there had been a significant discrepancy, Peter would have checked for wastage, theft, arithmetic or recording errors, or inaccurate measuring devices.

Grain, Feed, and Supplies Inventory, Recording Form III-7

One purpose of this sheet is to calculate the amount of money invested in these items so an interest charge can be levied against the hogs. The typical inventory value for calculating interest, average value, is assumed to equal the average of total value in beginning and ending inventories. It is calculated and recorded on lines 2, 4, 6, 8, 10. Another purpose is to recognize significant changes in the amount and value of these items on hand. After measuring such inventory changes, the hog enterprise can be properly credited or charged. Betty Jackson shows a decrease in inventory with a minus sign and an increase with a plus on lines 1, 3, 5, 7, and 9 of Recording Form III-7.

This is an inventory of items owned by the hog enterprise. It should not include grain in storage owned by the grain production enterprise (see the earlier discussion of Feed). On the Jackson farm there are two 10,000-bu. storage bins owned by the corn enterprise; any grain stored in them is not included here. However, there is a 2,000-bu. bin at their feed processing center considered to be the property of the hog enterprise. That bin was full at the beginning of their accounting period and contained 1,400 bu. at the end. So, the hogs ate 600 bu. out of inventory.

Antibiotics, arsenicals, etc., used as feed additives are considered feed. Injectables, water-soluble products, and any other drugs used at therapeutic levels should be listed as drugs.

Feed Purchase, Recording Form III-8

For purposes of the cost of production analysis of Reports III-1 and III-2, only the numbers on the bottom line of Recording Form III-8 are needed--total pounds of consumed ingredients and their total value. Your tax records can certainly yield the dollar amount of purchases but may not include quantity. If you want to calculate feed conversion but avoid the tedium of posting all your feed purchase transactions to Recording Form 8, change your tax records to include quantity. Betty listed separately on Recording Form III-8 the total purchases of the various feed ingredients the Jacksons buy. At the bottom of Recording Form III-8, she calculated the total of all purchases and then corrected for inventory change. Recording Form III-7 showed an increase in the inventory of these items. This means some extra hog feed ingredients were purchased in 1980 and not consumed by the hogs. Betty recognized this by subtracting the inventory increase in calculating consumption.

Grain Transfers and Purchases, Recording Form III-9

All grain consumed by the hogs is considered purchased, and data on these "purchases" are recorded here. In the case of the Jacksons, their own farm is the source of all feed grain (corn) for the hog enterprise. Corn is transferred at their convenience from bulk storage bins to the feed center. Once a month Betty charges the hogs for corn transferred to them. She uses the board price at the local elevator; the hogs are expected to pay the price the Jacksons could get if they sold their grain.

Other Operating Expenses, Recording Form III-10

Recording Form III-10 is used to accumulate the nonfeed cash operating expenses generated by your hog enterprise. If yours is a typical farm,

Recording Form III-7. Grain, Feed and Supplies Inventory

Item	Beginning - Date _____ No. Units	Price	Total Weight lbs.	Total Value	Ending - Date _____ No. Units	Price	Total Weight lbs.	Total Value
Feed Grain:								
Corn	2000	2.45	112,000	4900.	1400	3.20	78400	4480.
Oats								
TOTAL	XXXXXXX	XXXXXXX	112,000	4900.	XXXXXXX	XXXXXXX	78400	4480.
1. Inv. Change	XXXXXXX	XXXXXXX	-33,600	-420.				
2. Avg. Value	XXXXXXX	XXXXXXX	XXXXXXXXXX	4690.				
Other Feed:								
Soybean Meal							50	62.00
Premix MVP+			50	54.				
MVP			50	35.				
Antibiotic			50	97.				
Supplement-Sow			600	119.69			200	55.76
Grower			1300	286.00			1800	462.60
Finisher			3100	519.25			3700	732.60
Pig Feed			300	71.46			500	116.00
TOTAL	XXXXXXX	XXXXXXX	5450	1182.40	XXXXXXX	XXXXXXX	4250	1428.96
3. Inv. Change	XXXXXXX	XXXXXXX	+800	+246.56				
4. Avg. Value	XXXXXXX	XXXXXXX	XXXXXXXXXX	1305.68				
Drugs:	—	—	—	280.00				365.00
TOTAL	XXXXXXX	XXXXXXX	XXXXXXXXXX	280.00	XXXXXXX	XXXXXXX	XXXXXXX X	365.00
5. Inv. Change	XXXXXXX	XXXXXXX	XXXXXXXXXX	+85.00				
6. Avg. Value	XXXXXXX	XXXXXXX	XXXXXXXXXX	322.50				
Supplies:								
Bedding	1½T	50.00	—	75.00	1½T	50.00	—	75.00
TOTAL	XXXXXXX	XXXXXXX	XXXXXXXXXX	75.00	XXXXXXX	XXXXXXX	XXXXXXX X	75.00
7. Inv. Change	XXXXXXX	XXXXXXX	XXXXXXXXXX	—				
8. Avg. Value	XXXXXXX	XXXXXXX	XXXXXXXXXX	75.00				
Fuel:								
L.P. Gas	200	.55	—	110.00	125	.65	—	81.25
TOTAL	XXXXXXX	XXXXXXX	XXXXXXXXXX	110.00	XXXXXXX	XXXXXXX	XXXXXXX X	81.25
9. Inv. Change	XXXXXXX	XXXXXXX	XXXXXXXXXX	-18.25				
10. Avg. Value	XXXXXXX	XXXXXXX	XXXXXXXXXX	95.63				
11. Total Average Investment (Sum lines 2, 4, 6, 8, 10)				6488.81				

Recording Form III-8. Feed Purchase

Date	1. Soybean Meal lbs.	1. Soybean Meal $	2. Antibiotic Premix lbs.	2. Antibiotic Premix $	3. (MV Premix) lbs.	3. (MV Premix) $	4. (MV +) lbs.	4. (MV +) $
Totals			250	478.	1100	1179.48	400	549.

Date	5. Soy Supplement lbs.	5. Soy Supplement $	6. (Grower Supp.) lbs.	6. (Grower Supp.) $	7. Pig Feed lbs.	7. Pig Feed $	8. (Finish Supp.) lbs.	8. (Finish Supp.) $
Totals	19400	4523.79	30550	6963.90	3950	841.59	81050	14141.50

Summary

	lbs.	$
Total purchases of all ingredients on this sheet (Columns 1 thru 8)	136,700	28,677.06
Change in inventory of these items (Form 7, Line 3)	- 800	- 246.56
Total use of feed ingredients other than grain	135,900	28,430.40

Recording Form III-9. Grain Transfers and Purchases

Date	1 Source	2 Kind	3 No. of Units	4 Unit Price	5 Total Weight (lbs.)	6 Total Dollars
Feb.	Bin 1	Corn	1200 bu.	2.39	67200	2868.00
Mar.	Bin 2	"	1500 bu.	2.40	84000	3600.00
Apr.	Bin 1	"	1600 bu.	2.36	89600	3776.00
May	Bin 2	"	1500 bu.	2.42	84000	3630.00
June	Bin 1	"	1800 bu.	2.49	100800	4482.00
July	Bin 1	"	1500 bu.	2.93	84000	4095.00
Aug.	Bin 1	"	1350 bu.	2.92	75600	3942.00
Sept.	Bin 2	"	1100 bu.	3.01	61600	3311.00
Oct.	Bin 2	"	1100 bu.	2.99	61600	3289.00
Nov.	Bin 2	"	1100 bu.	3.10	61600	3410.00
Dec	Bin 2	"	1000 bu.	3.19	56000	3190.00
TOTALS			14750	XXXXXXX XXXXXXX	826000	39,553.00
Change in Grain Inventory (Form 7, Line 1)			+600	XXXXXXX XXXXXXX	33600	420.00
Total Grain Use			15350	XXXXXXX XXXXXXX	859600	40,013.00

deciding what share to charge the hogs for some of these costs may be a problem. (For help with that, see "The Shared Input Problem.")

For the first three categories of cost, hired labor, electricity, and fuel, record quantity as well as cost. With prices changing rapidly, knowledge of the quantity of fuel, electricity, and hired labor required in production will be valuable for a comparison of usage from year to year. It will also help when preparing budgets for cash-flow or feasibility study. You need records of labor use in hours so you can calculate labor efficiency for comparison with other farms.

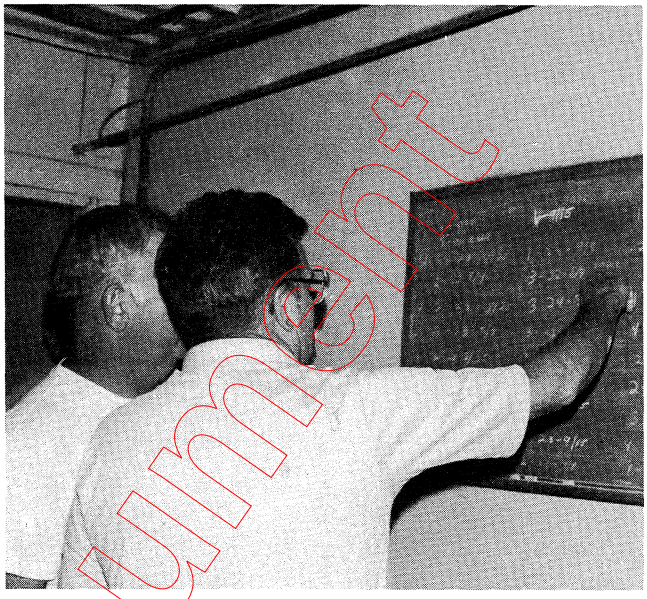
For fuel (column 3), veterinary and medicine (column 4), and bedding and supplies (column 5), recognize any significant inventory changes revealed on Recording Form III-7. For example, Betty Jackson charged the hogs for 75 gal. of L.P. gas that showed up as a drop in inventory. She credited the hogs for $85.00 worth of extra drugs bought during the year but still unused at the end of the year.

Betty Jackson completed Recording Form III-10 by listing expenditures from her tax records for each category:

--Veterinary and medicine does not include feed additives used for nutritional or growth promotion purposes: it does include veterinary service, injectables, water-soluble medication, vaccines, etc.

--Under bedding and supplies, Betty listed expenditures for chemicals added to the manure pits, rat poison, and straw.

--She estimated tractor and truck expense by charging the hogs for 150 hours of tractor use at $5.00 per hour, and 1,500 miles on the pickup at 22 cents per mile. She listed the total of cash payments to a local trucker who hauled some hogs to market. She did not make the mistake of double counting by recording here trucking charges already deducted from gross sales on Recording Forms III-2 and III-3 or added to costs on Recording Forms III-8 and III-9.



Each member of the family is expected to record the daily labor input.

--Under miscellaneous Betty listed such things as the check-off money for NPPC, postage, the hogs' share of the telephone bill, and the tax accountant's fees.

Daily Journal of Unpaid Labor, Recording Form III-11

You need a system to monitor the labor used by the hog enterprise on a multi-enterprise family farm (see the earlier discussion, "Labor"). Peter Jackson hangs a copy of Recording Form III-11 on the mudroom door of their home. At the end of the day all traffic from the hog unit passes through that door. Each family member is expected to record his or her daily labor input. Betty accumulates these records and calculates total labor usage at the end of the accounting period (a year for the Jacksons). This total is recorded on line B4a of Report III-1.

Recording Form III-10. Other Operating Expenses

	1. Hired Labor Hrs.	1. Hired Labor $	2. Electricity Kwh.	2. Electricity $	3. Fuel Gal.	3. Fuel $	4. Vet. & Med. $	5. Bedding & Supplies $
							411.52	333.35
							672.70	27.92
							630.01	118.80
Totals	54	$189.00	24123	$1206.17	911	$601.21	1714.20	480.07
Change in Inventory (Form 7)					+ 75	+ $18.75	− 85.00	—
Total Usage					986	$619.96	1629.20	480.07

	6. Insurance $	7. Prop. Tax $	8. Repairs and Maintenance $	9. Tractor & Truck Use $	10. Miscellaneous $
				180.33	27.50
				750.00	95.51
				330.00	17.40
					101.00
					85.00
Totals	939.	428.92	591.98	1260.33	326.41

Recording Form III-11. Daily Journal of Unpaid Labor

Month March Year 1980

Date	Comments	Hours Spent on the Hog Enterprise							Total
		Peter	Betty	Tess	Carol				
1		3	—	—	—				3
2		10	2	—	—				12
3		5	2						7
4		5	3						8
5		6	—	4	4				14
6		4	—						4
7		10	3						13
8		4	1						5
9		4	2						6
10		8	2						10
11		8	2						10
12	Scrub Farrowing	7	—	6	6				19
13		4	—						4
14		8	2						10
15		3	3						6
16		5	3						8
17		6	1						7
18		6	1						7
19		7	—	5	5				17
20		4	—						4
21		10	2						12
22		3	3						6
23		4	2						6
24		6	2						8
25		7	2						9
26		4	—	4	4				12
27		10	—						10
28		4	1						5
29		5	4						9
30		6	2						8
31		6	2						8
Total Hours		176	47	19	19				261
Hourly Rate		5.00	4.00	2.00	2.00				XXXXXXX XXXXXXX
Total Value		$880.00	$188.00	$38.00	$38.00				$1144.

Swine Equipment--Value and Depreciation, Recording Form III-12; and Swine Housing and Land--Value and Depreciation, Recording Form III-13

Use these forms to establish a charge against the hogs for the replacement of facilities (depreciation) and a second charge for interest on the money tied up in capital items. (For a discussion of the issues, see "Capital Costs.")

Because the Jacksons have used conservative rules (straight-line depreciation, relatively long lives) in their depreciation schedule for the federal income tax, they decided it was the best source of data for Recording Forms III-12 and III-13. At the beginning of the accounting period, Betty copied the data for all hog related items from their depreciation schedule into columns 1 and 2 of these forms. For items of equipment or buildings used by other farm enterprises as well as the hogs, she enters an appropriate percentage of the value here. For instance, Betty recorded 50% of the beginning value and annual depreciation on Recording Form III-13 for a barn used half for sow shelter and half for field equipment storage.

Record buildings or equipment acquired during the accounting period at the time of purchase. For example, this is where Betty Jackson recorded the new stock trailer purchased on May 1.

You should complete column 3, Accounting Period Depreciation, at the end of the accounting period. Since the Jacksons close their books annually, the figures in columns 2 and 3 are identical for almost every item. However, for a person closing accounts quarterly, column 3 will be 1/4 of column 2; for a person closing monthly, it will be 1/12. In all cases, only part of the annual depreciation is charged if an item is purchased or sold during the accounting period. Because the Jacksons traded stock trailers on May 1, the hogs in 1980 were charged for 4/12 of the annual depreciation of the old one and 8/12 of the annual depreciation of the new one. This agrees with their report of depreciation expense to the Internal Revenue Service. The Accelerated Cost Recovery Provisions of the Tax Act of 1981 will allow a taxpayer six months of depreciation (Cost Recovery) in the year of purchase, whether the purchase was in January or December.

The figures in column 4, Amount at Interest, will be identical to those in column 1 for any item available for use during the entire accounting period. The reason is that the depreciation payment is assumed to be made at the end of the accounting period. Therefore, the amount at interest is the beginning value for the share of the accounting period for which the item is available for use. The consequence is that the only items for which the column 1 and column 4 values differ are those purchased or sold during the accounting period. The Jacksons' stock trailer is an example. For the old stock trailer the amount at interest was $665 for four months and zero for eight months or $222 on average.

To calculate,

$$\text{column 4 value} = \text{column 1 value} \times \frac{\text{months available for use}}{\text{months in accounting period}} .$$

For the old stock trailer:

$665 x 4/12 = $222.

Since land (Recording Form III-13) does not depreciate, there is no need to consider a depreciation allowance for it. The Jacksons have 9-1/2 acres in breeding and gestation lots and in building sites. This is land that has a market value of $1,000 per acre, so they expect the hogs to pay interest on $9,500.

Recording Form III-12. Swine Equipment--Value and Depreciation

Date 12/31/80

Item	1. Beginning Value	2. Annual Depreciation	3. Accounting Period Depreciation	4. Amount at Interest
Utility Tractor	905.	91.00	91.00	905.
Farrowing Crates	770.	251.00	251.00	770.
Feeders	2591.	357.00	357.00	2591.
Fan	665.	95.00	95.00	665.
Stock Trailer Sold May 1st	665.	140.00	47.00	222.
Feed Grinder	1430.	341.00	341.00	1430.
Feed Wagon	826.	194.00	194.00	826.
Honey Wagon	1175.	441.00	441.00	1175.
Manure Pump	1042.	305.00	305.00	1042.
Scraper Blade	200.	30.00	30.00	200.
Manure Spreader	275.	115.00	115.00	275.
Stock Trailer New May 1st	2085.	208.50	139.00	1390.
Totals	12629.	2568.50	2406.00	11491.

Recording Form III-13. Swine Housing and Land--Value and Depreciation

Date _____

Housing Description	1. Beginning Value	2. Annual Depreciation	3. Accounting Period Depreciation	4. Amount at Interest
Feed Bin	402.	17.	17.	402.
Feeding Floor	2816.	234.	234.	2816.
Farrowing House	8227.	633.	633.	8227.
Feed Center	5332.	410.	410.	5332.
Nursery	13088.	892.	892.	13088.
Nursery Improvement	1365.	254.	254.	1365.
Farrowing Improvement	1075.	198.	198.	1075.
Hog Shelters	1795.	194.	194.	1795.
Totals	34100.	2832.	2832.	34100.

Land Description	Beginning Value	Amount at Interest
9.5 acres in lots and building sites	9500.	9500.
Totals	9500.	9500.

Cost of Production Summary, Report III-1

Complete this report at the end of your accounting period. The source of the information is listed beside each item.

Betty Jackson transferred all her totals to the left hand columns labeled Total Enterprise. She and Peter made the following decisions and calculations to complete Report III-1.

--To calculate an interest charge for entry on lines B2h and B4e, Peter and Betty agreed on percentage interest rates that reflected their situation. They reasoned a rate of 16% was appropriate for the investment in hogs and in feed, grain, and supplies. If they liquidated these assets, they would use the money to pay off their 16% operating loan. They figured interest on the investment in facilities at 12%. This rate is representative of the payoff from other investment opportunities open to them. They charged only 5% on the investment in land because this represented the typical return to an agricultural landlord. To calculate the interest charge for land, Betty multiplied $9,500 (Recording Form III-13) by 5%. Notice the $475.00 solution represents an annual interest charge. This is correct for the Jacksons since their accounting period is a year. A person closing his books quarterly would divide the $475 by 4. A monthly reporter would divide by 12.

--After reading the discussion of "The By-Product Problem," the Jacksons decided to ignore the By-Product Credit line at the bottom of Report III-1.

--On line A1, Betty divided total receipts by hundredweight (cwt.) sold to get the average sale price of $39.55. She made a similar calculation for line A2 to arrive at $36.33 for the value of the average hundredweight produced. Then the boxed figure on line A2 (1916.3 cwt. for the Jacksons) became the key to the rest of the calculations. It reflects purchases and inventory changes as well as sales, and is the measure of production. Every item in the Total Enterprise column is divided by this number to calculate cost per hundredweight produced.

Return to Capital, Labor, and Management, Report III-2

Report III-2 focuses on the rewards generated by the hog enterprise for the capital invested and for the labor and management provided. Each entry is accompanied by a note on data sources and on the necessary calculations. Use the Jacksons' calculations as your guide.

PUTTING THE RECORDS TO WORK

The accumulation of data is futile unless it is assembled into useful reports. A few of the more obvious lessons to be learned from cost of production records will be discussed here. However, the user must realize a record like the sample for the Jackson farm is good for detecting the existence of a problem but is not good at suggesting a cure. For instance, the records (Report III-1) show the Jacksons had a major problem with feed conversion in 1980. The records do little to identify the source of the problem: feed wastage, theft, poor breeding stock, improperly balanced rations, etc.? The Jacksons had to do the detective work after getting the clue of a feed efficiency problem from Report III-1.

Learning from the Working Reports

The summary reports of the cost of production analysis described in this section are Reports III-1 and III-2 and most emphasis will be placed on those. However, the working papers (Recording Forms III-1 thru III-13) also provide valuable insights. For instance:

Hog Sales. 1. Betty Jackson discovered on Recording Form III-5 that, if the

Report III-1. Cost of Production Summary

Item	Total Enterprise Quan.	Total Enterprise $	Per Unit Quan.	Per Unit $
A. Income				
1. Sales (Form III-5, sum of lines 1,2,3,4)	2197.7 cwt.	86771.98	1 cwt.	39.55
2. Production (Form III-5, line 13)	1916.3 cwt.	69612.98	1 cwt.	36.33
B. Costs				
1. Feed				
a. Grain (Form III-9)	859,600 lbs.	40,013.00	448.6 lbs.	20.88
b. Other Feed (Form III-8)	135,900 lbs.	28,430.40	71.0 lbs.	14.84
c. TOTAL FEED	995,500 lbs.	68,443.40	519.6 lbs.	35.72
2. Non-Feed Variable Costs				
a. Hired Labor (Col. 1, Form III-10)	54 hrs.	189.00	— hrs.	.10
b. Electricity (Col. 2, Form III-10)	24123 kwh.	1206.17	12.6 kwh.	.63
c. Fuel (Col. 3, Form III-10)	986 gal.	619.96	.5 gal.	.32
d. Vet. & Med. (Col. 4, Form III-10)		1629.20		.85
e. Bedding & Supp. (Col. 5, Form III-10)		480.07		.25
f. Repairs & Maintenance (Col. 8, Form III-10)		591.98		.31
g. Tractor & Truck Use (Col. 9, Form III-10)		1260.33		.66
h. Interest				
Hogs (Form III-1, Line 4) @ 16 %		7793.60		4.07
Grain, Feed, Supplies (Form III-7) @ _____ %		1038.24		.54
i. Miscellaneous (Col. 10, Form III-10)		326.41		.17
j. TOTAL NON-FEED VARIABLE COST		15134.96		7.90
3. Total Variable Cost (sum B1c and B2j)				43.62
4. Overhead (Fixed) Costs				
a. Unpaid Labor (Form III-11)	2750 hrs.	12053.25	1.44 hrs.	6.30
b. Insurance (Col. 6, Form III-10)		939.00		.49
c. Property Tax (Col. 7, Form III-10)		428.93		.22
d. Depreciation				
Equipment (Form III-12)		2406.40		1.26
Housing (Form III-13)		2832.00		1.48
e. Interest				
Land (Form III-13) @ _____ %		475.00		.25
Housing (Form III-13) @ _____ %		4092.00		2.14
Equipment (Form III-12) @ _____ %		1378.92		.72
f. TOTAL OVERHEAD		24605.10		12.85
5. TOTAL ALL COSTS (sum B3 and B4f)		108183.46		56.47
6. By-Product Credit		—		—
7. ADJUSTED TOTAL COSTS (line 5 minus line 6)		108183.46		56.47

Report III-2. Hog Enterprise Return to Capital, Labor, and Management

1.	Total Value of Production (Form III-5, Line 13)		$ 69612.98
2.	Less Feed Cost (Report III-1, Line B1c)	$ 68443.40	
3.	Income Over Feed (Line 1 minus Line 2)		$ 1169.58
4.	Deduct all non-feed costs listed on Report III-1 except "Unpaid Labor" (line B4a) and "Interest" (Lines B2h and B4e). Or, another way of saying it, sum B2a + b + c + d + e + f + g + i and B3b + c + d.	$ 12909.05	
5.	Return to Capital, Unpaid Labor and Management (Line 3 minus Lines 4)		$ -11739.47
6.	Less: Charge for Unpaid Labor (Report III-1, Line B3a)	$ 12053.25	
7.	Return to Capital (Line 5 minus Line 6)		$ -23792.73
8.	Investment:		
	Hogs (Form III-1, Line 4)	$ 48710.00	
	Grain, Feed and Supplies (Form III-7, Line 11)	$ 6488.81	
	Equipment (Recording Form III-12, Column 4)	$ 1491.00	
	Housing (Recording Form III-13, Column 4)	$ 34100.00	
	Land (Recording Form III-13, Column 2)	$ 9500.00	
	Total Capital		$ 110290.00
9.	Rate Earned on Capital (Line 7 ÷ Line 8 x 100)		$ -21.6 %
10.	Return to Capital, Unpaid Labor and Management (Line 5, above)		$ -11739.47
11.	Less: Interest on Capital (Report III-1, Line B2h + Line B4e)	$ 14777.76	
12.	Return to Unpaid Labor and Management (Line 10 minus Line 11)		$ -26517.23
13.	Hours of Unpaid Labor (Report III-1, Line B4a)		2750 hrs.
14.	Returns/hour of Unpaid Labor (Line 12 ÷ Line 13)		-9.64 /hr.
15.	Hours of Total Labor (Report III-1, Line B2a plus B4a)		2804 hrs.
16.	Returns/hour of Total Labor (Line 12 above plus total dollars paid for hired labor on Line B2a Report III-1 ÷ Line 15 above)		-9.38 hrs.
17.	Cwt. of Gain Produced with an Hour of Labor (Report III-1, Line A2 ÷ Line 15 above)		.68 cwt.

counts of hogs in inventory, those sold and purchased, and pigs weaned were accurate, 162 animals died after weaning. She calculated a crude estimate of post-weaning mortality by dividing the number of deaths (162) by the number weaned (1,089). Fifteen percent mortality after weaning is too high when farrow-to-finish norms are 3.5% in nursery and 3% in finishing.

2. Lines 1 through 4 of Recording Form III-5 represent a summary of the product mix from the Jackson hog farm. Total sales were 988 head. The mix was 10% sows, 5% feeder pigs, and 85% market hogs. Betty Jackson knows that it is rare for the economics to favor the sale of feeder pigs instead of carrying them to market weight if finishing space is available. Also, since there is no shortage of finishing capacity on the Jackson farm, Betty was skeptical of Peter's wisdom in selling 100-lb. pigs in February. However, Peter's decision is justified by the monthly price pattern for market hogs revealed on Recording Form III-2. With the Jacksons' high feed cost, it was better to sell 100-lb. pigs at a time of reasonably good prices rather than feed them 90 days to sell on the depressed May market.

3. When finishing space is available, Betty knows it usually pays to feed market hogs to the top end of the most favored, highest priced weight group. She discovered there were four months in 1980 when the price of hogs did not cover feed cost on the Jackson farm. Still, she suspected that Peter had sold too light (217 lb. average on top line of Recording Form III-5). However, with the monthly sales data on Recording Form III-2 and her newly acquired cost of production information, she concluded Peter's decision was a good one. Peter sold lightweight hogs in the January through April period and again in July. He was not 100% accurate, but in all cases he had reason to suspect the price was moving lower, so he should sell.

Rations. 1. Many hog farmers measure feed ingredients by volume rather than weight. Consequently, there is a common concern whether the ingredients are being blended in the proper proportions. The data on Recording Forms III-8 and III-9 permit a crude ration analysis. The Jacksons fed only 3.6 lb. of pig feed per pig (3,950 lb. feed and 1,089 weaned pigs). Are they following the manufacturer's recommendations? Are they feeding enough? The average mixed ration fed on the Jackson farm contained 1 part of supplement (131,000 lb. total) to 6.6 parts of corn (859,600 lb. total) and had a protein content of 12.6%. But a standard recommendation from agricultural college nutritionists would call for an average 14% ration on a farrow-to-finish farm (16% starter, 15% grower, 13% finisher, 14% in gestation, 15% in lactation).

2. Although the Jacksons do not use this feature, Recording Form III-8 provides a listing of the date delivered, quantity, and value of each ingredient. This allows you to monitor variation and trends in quantities delivered and prices of various ingredients. It provides a check on the performance of your feed supplier as well as your hogs.

Answering the Questions on the Producer Questionnaire

Using the Jackson farm example, cost of production records will be used as a tool to answer the list of questions in the Producer Questionnaire at the beginning of this section.

A Comparison of Your Costs with Other Producers and with the Price of Hogs. Most hog farmers do not know their costs so they don't know how well or badly they are doing. The Jacksons obviously were aware of financial problems as they lived through 1980, but they were shocked at the analysis of Report III-1 which showed their total cost of production ($56.47, line B5) to be $16.92 per cwt. greater than the average price they received ($39.55, line A1). Costs

exceeded receipts by $21,411; and because of a decrease in the hog inventory, costs exceeded value of production by $38,570.

The Jacksons might adopt a philosophical attitude to the misfortune of 1980, reasoning since they are in a cyclical business, things will surely get better. However, the hog business is also highly competitive, and the profits of their enterprise will finally be determined by the relationship of their costs of production to those of other hog producers. Are they competitive or are their costs so high in comparison with other producers that they will eventually be forced out? You need to be on the lookout for data with which you can compare. What are the industry leaders doing? What are production costs in other geographic areas? Do big producers have costs lower than yours? Are you at a disadvantage compared to producers using different production methods? For instance, the Jacksons compared their costs with those in Table III-1 and were justifiably worried when they discovered they did not compare favorably with such published data. Their cost of production was $5.00 to $7.00 per cwt. above the accepted norms in the Corn Belt in 1980.

At What Price Should You Consider Cutting Production? Expanding? The Jacksons' total cost data suggest they would have been better off if they had been out of production throughout 1980. Total cost was $56.47 per cwt. (line B5, Report III-1); average sale price was $39.55 (line A1, Report III-1), and the monthly average price of market hogs ranged from $29.01 in April to $48.93 in August (Recording Form III-2). But total cost ($56.47/cwt.) is not useful in deciding whether to shut down. For that decision, divide costs into fixed and variable categories. The data on Report III-1 are arranged to help distinguish between Fixed and Variable costs and, therefore, to help identify the shutdown price. In fact, the shutdown price for the Jacksons in 1980 was $43.62 (labeled Total Variable Cost, line B3, Report III-1). Every component of the $43.62 is a cost which would stop if the Jacksons quit raising hogs. So, whenever prices were below $43.62 (January through July 1980), it would have been better to be out of production. But at any price above $43.62, they were better off producing, even though total cost was $56.47. The reason is that those costs labeled Overhead Costs (line B4, Report III-1) will not go away if the hog enterprise is liquidated. So, at any price above $43.62 the Jacksons had some surplus to serve as a payment to family labor and facilities, and they were better off in production rather than out.

Three different warnings need to be issued here:

1. We are assuming the Jacksons would make their shutdown decision on the basis of one year's record. But 1980 may have been an abnormal year for them. They may have had serious disease problems or there may have been some other chance occurrence affecting costs which wouldn't be expected to be repeated. Several years of cost of production records are best as the basis for a shutdown or an expansion decision.

2. In 1980, $43.62 was the Jackson's shutdown price, and they got the shutdown message from the market. However, some businesses are difficult to start up after shutdown, and the Jacksons' farrow-to-finish unit is an example. Because of the cost of reassembling a breeding herd and the rapid deterioration of empty buildings, the shutdown decision is a serious one. It is a decision most sow herd operators are willing to consider only if they see an opportunity to make a marked improvement in the disease level on their farm or if they expect the shutdown to be permanent.

3. The division of costs into fixed and variable categories is not as clear-

The Jacksons compared their costs with those in Table III-1 and were justifiably worried when they discovered they did not compare favorably with such published data.

cut as the layout of Report III-1 suggests. For instance, the Jacksons believed the hogs represented the only opportunity to employ their family labor in 1980. So, family labor was a legitimate fixed cost for them. However, if Betty had the alternative of another job in the community, her share of the labor would shift to the variable cost category and raise their shutdown price. In other words, it would take a higher price for hogs to keep them in business. The opportunity to rent their hog buildings to a neighbor would have had the same effect. As a practical matter, the costs listed on Report III-1 need to be reclassified into fixed and variable categories at the time of each decision and in light of the particular decision. The data on Report III-1 will help answer the relevant questions for the shutdown decision. The questions are: Which costs would I avoid if I quit producing? Is the market offering me enough to cover those costs and have some left over?

The data needs for the expansion decision are similar to those for shutdown. The focus must again be on variable as opposed to fixed costs. The data can again come from Report III-1. However, on the same farm, at the same time different costs should be classified as variable depending upon the question being asked. For instance, based on one year's records, the expected price required to encourage the Jacksons to consider major expansion is $56.47 (Report III-1, line B5). This is the price required to cover all the costs of production and for major expansion all costs may be variable--buildings have not been built, agreements with labor have not yet been made, etc. At the other extreme, Peter might be considering very modest expansion--possibly only adding five sows for which he already has plenty of labor and facilities. He might even reason he could accomplish such an increase without increasing the heating, lighting, or repair bills. In deciding upon an expansion of this magnitude, his list of variable costs will be shorter and the hog price required to encourage expansion considerably lower. Ask yourself the following questions before making an expansion decision: What costs will I incur in producing an extra hundredweight of gain? Is the market promising that much or more?

Strong and Weak Points of Your Business. For some very good help in identifying specific areas of strength and weakness, join a record association. Choose one where the data are prepared according to uniform rules to facilitate a comparison with other farms. There will be an added advantage if there are enough farms like yours in size, geographic location, and production methods to permit a comparison among similar units. A comparison of fuel costs with a producer 300 miles south does not help Peter Jackson decide if his thermostat settings are too high. Also, since he produces in confinement, Peter cannot evaluate his opportunities to improve building or labor costs by comparing with pasture producers.

Because they are not in a record association, the next best alternative

Table III-2. Jackson Farm--Cash Flow Projection to Estimate Acceptable Sale Price for Contracting

Items	Cost	
	Total	Per Cwt.
1. Corn--13,350 bu. @ $2.90	$ 38,715	$19.36
2. Other Feed--142,000 lbs. @ $0.16	22,720	11.36
3. Hired Labor	0	0
4. Electricity	1,450	.73
5. Fuel	750	.37
6. Vet. and Medicine	1,650	.83
7. Bedding and Supplies	500	.25
8. Repairs and Maintenance	600	.30
9. Tractor and Truck Use	1,250	.62
10. Miscellaneous	350	.17
11. Family Living	12,000	6.00
12. Debt Service (Principal and Interest)		
Operating Loan	16,400	8.20
Facilities Loan	4,650	2.33
	$101,035	$50.52

for the Jacksons was a comparison with published data like those in Table III-1. Such comparisons are always a little difficult because the published data are likely to be sorted and calculated somewhat differently from yours.

The Jacksons' comparison of their data on Report III-1 with Table III-1 reveals a strength of the Jackson farm in the cost of providing facilities ($6.56/cwt. produced for the Jacksons versus $8.50 as a norm). Peter was not surprised at this because he felt he had obtained his buildings at a bargain price by serving as his own contractor. The Jacksons are also cost competitive in the out-of-pocket costs of providing buildings and equipment--electricity, fuel, and repairs.

The Jacksons' glaring weakness was in feed cost. Their conversion of 519.6 lb. was almost 30% above the accepted norm of 400 lb. for farrow-to-finish, and feed cost per hundredweight produced was $4.62 too high. There were also problems with the cost of providing veterinary service and medicine, and with labor.

At What Price Should You Consider Forward Selling? Hog price fluctuations introduce an element of risk into hog production that some producers and their bankers would like to minimize. Market price variation poses more of a financial threat to big specialized units than to small production units on general farms. In response to financial pressure, more producers are considering forward pricing as a way of locking in a price covering their cash commitments and reducing the risk of bankruptcy. To play this game, you must know your costs so you can distinguish between an acceptable and an unacceptable price.

The Jacksons are a young farm family carrying considerable debt. They would like to reduce the risk of bankruptcy and to reassure their banker. As an aid to use in evaluating forward selling opportunities in 1981, the Jacksons have prepared a cash-flow budget for their hog enterprise (see Table III-2) using their Report III-2 data as a base.

In preparing Table III-2 from their information on Report III-2, Peter and Betty Jackson made two kinds of adjustments:

1. Report III-2 is a record of past performance, and Table III-2 is a forecast of the future. In looking ahead, Peter expected these changes: Sales will be down a bit in 1981 because beginning inventory was lower. Peter expects to sell 2,000 cwt.: Peter estimated the season average corn price at $2.90, but he expects to improve feed conversion and to reduce total corn usage by 2,000 bu.; he does not anticipate a reduction in the pounds of purchased feed used, but he expects the price to be down because of a general weakening of supplement prices and because he plans to change suppliers; Peter plans to eliminate all hired labor; he is expecting a 20% rise in fuel and electricity prices.

2. On line 12 they listed their actual cash commitments to pay principal and interest on hog enterprise debt rather than the depreciation charge and the opportunity interest charge from Report III-1. And, on line 11, they substituted Betty's estimate of the cash she needed from the hog enterprise as a contribution to family living expense instead of Report III-1's opportunity labor charge.

Their conclusion was they need an average hog price of $50.52 to cover their commitments in 1981. They will be looking for selling opportunities at that level or above.

Sharing Arrangements. Sharing arrangements are common in U.S. agriculture. Some prime examples are the 50-50 share leases and the 1/3, 2/3 agreements which are so common in the Corn Belt. The basic premise behind such arrangements is that each party should receive in proportion to his contribution. For instance, the cost of owning land is widely agreed to represent about 1/3 of the total cost of corn production; therefore, the landlord "deserves" 1/3 of the crop. Such sharing arrangements have been highly successful. They provide an automatic incentive to each participant since he gets his share. They also carry an aura of equity and fairness.

A set of data like that on Report III-1 or several years' accumulations of such data can provide the basis for calculating contributions. For instance, after the Jacksons grouped some of their 1980 costs and expressed them as a percentage, they looked like this:

Table III-3. Jackson Farm--A Percentage Breakdown of Costs

Item	% of Total Cost
Feed	63%
Other Out-of-Pocket Costs (Repair, Tractor and Truck, Vet., Electric, Fuel, Misc.)	6%
Interest on Inventory	8%
Labor	11%
Ownership Cost of Facilities (Depreciation, Interest, Taxes, Insurance)	12%
Total	100%

The Jacksons are considering a career change that would cause them to leave the farm. Their data suggest two possible share arrangements they might offer to a neighboring farmer:

1. Because their records show labor cost and the ownership cost of facilities to be about equal, a 50-50 share arrangement seems reasonable. With such an agreement, the Jacksons will provide all facilities and the operator will provide all labor. There will be an equal sharing of all other costs and of receipts. Each party will own half the inventory of livestock and feed.

2. Because their records show that labor represents about 11% of total cost, the Jacksons are also considering an offer of a guaranteed wage or 11% of the gross (whichever is greater) as a payment for labor. The operator would agree to provide all necessary labor.

Invest in Hog Production?. The manager's goal is to identify those investments that promise the greatest return to his capital, labor, and management. The successful manager is constantly faced with the question, "Where should the next investment be made?" The answer is always changing, so the analysis needs to be continuously updated.

To help make investment decisions, the farm manager needs a method of calculating the returns from his hog enterprise and other farm enterprises to help him in comparing alternative farm investments and nonfarm alternatives. Report III-2 leads to a calculation of:

1. Rate Earned on Capital (line 9) which can be readily compared with the interest rates available from off-farm investments.

2. Return per Hour of Unpaid Labor (line 14) which can be compared with the wage level of people with similar skills.

Since most farmers will be choosing among farm investments rather than off-farm, it will be very valuable to have records from other farm enterprises which express earnings in the same terms.

The Jacksons' 1980 data were so distressing that comment on their specific numbers would not be productive. However, two points should be made. 1) Hog production is a cyclical business, and investment decisions in such a business should not be made on the basis of performance in the low year of the cycle. 2) Earnings in the hog enterprise over a period of years have been excellent as the previous five years' data from the Jackson farm would demonstrate.

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